

Monthly Compliance Report

Solid Waste Permit #221
Bristol Integrated Solid Waste Management Facility
2655 Valley Drive
Bristol, VA 24201
(276) 645-7233

SCS ENGINEERS

02218208.05 | November 10, 2022

15521 Midlothian Turnpike Suite 305
Midlothian, VA 23113
804-378-7440

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EXECUTIVE SUMMARY

On behalf of the City of Bristol, Virginia (City), SCS Engineers has prepared this report to the Virginia Department of Environmental Quality (VDEQ) outlining steps taken towards the action items outlined in the Plan of Action submitted to VDEQ on July 6, 2022. This report covers the Solid Waste Permit #221 landfill during the month of October.

1.0 SURFACE EMISSIONS MONITORING

On October 12, 2022, SCS performed surface emissions monitoring on the landfill. The monitoring was performed in accordance with the site-specific GCCS Design Plan, the facility's Title V Permit, the requirements of 40 CFR 63.1960(c) and (d), 40 CFR 60.36f(c) and (d), and 40 CFR 60, Appendix A, Method 21. The landfill gas (LFG) collection system is required to operate such that the methane concentration is less than 500 ppm above background at the landfill surface. The frequency for performing surface emissions monitoring at the Closed Landfill is on an annual basis in accordance with the Facility's approved GCCS Design Plan.

The monitoring route included all applicable areas of the Permit No. 221 landfill. Sampling was conducted with a Thermo Scientific TVA-2020 Flame Ionization Detector (FID) at 30-meter intervals and where visual observations indicated the potential for elevated concentrations of LFG, such as distressed vegetation and surface cover cracks. In addition, in accordance with 40 CFR 63.1958(d)(ii)(2) and 40 CFR 60.34f(d), monitoring was conducted at all surface cover penetrations within the waste footprint outside of the active filling area.

VDEQ was copied on a letter outlining the results on October 28, 2022. A copy of that submittal is included in Appendix A. Table 1 summarizes the results of the monitoring event.

Table 1. Summary of October Surface Emissions Monitoring

Description	October 12, 2022
Number of Points Sampled	85
Number of Points in Serpentine Route	73
Number of Points at Surface Cover Penetrations	12
Number of Exceedances	0
Number of Serpentine Exceedances	0
Number of Pipe Penetration Exceedances	0

2.0 GAS COLLECTION

On October 12, 2022 SCS Field Services (SCS-FS) visited the landfill and performed monitoring of the landfill gas wells. The results of that monitoring were submitted to VDEQ on November 2, 2022 and are included in Appendix B. This data will be used to optimize the wellfield and address oxygen intrusion.

Appendix A

Annual Surface Emissions Monitoring Event – Permit 221 Landfill

October 28, 2022
File No. 02218208.04

Mr. Mike Martin
Solid Waste Administrator
City of Bristol Virginia
2125 Shakesville, Rd
Bristol, VA 2125

Subject: Annual Surface Emissions Monitoring Event – Permit 221 Landfill - October 12, 2022
Bristol Integrated Solid Waste Facility – Bristol, Virginia

Dear Mr. Martin:

SCS Engineers (SCS) is pleased to submit the results of the Annual 2022 Surface Emissions Monitoring (SEM) event performed at the Solid Waste Permit No. 221 Landfill at the Bristol Integrated Solid Waste Facility located in Bristol, Virginia on October 12, 2022. The monitoring was performed in accordance with the site-specific GCCS Design Plan, the facility's Title V Permit, the requirements of 40 CFR 63.1960(c) and (d), 40 CFR 60.36f(c) and (d), and 40 CFR 60, Appendix A, Method 21. The landfill gas (LFG) collection system is required to operate such that the methane concentration is less than 500 ppm above background at the landfill surface. The frequency for performing surface emissions monitoring at the Closed Landfill is on an annual basis in accordance with the Facility's approved GCCS Design Plan.

The monitoring route included all applicable areas of the Permit No. 221 landfill. Sampling was conducted with a Thermo Scientific TVA-2020 Flame Ionization Detector (FID) at 30-meter intervals and where visual observations indicated the potential for elevated concentrations of LFG, such as distressed vegetation and surface cover cracks. In addition, in accordance with 40 CFR 63.1958(d)(ii)(2) and 40 CFR 60.34f(d), monitoring was conducted at all surface cover penetrations within the waste footprint outside of the active filling area. The approximate monitoring route and sampling locations are presented in the attached Drawing.

At the time of monitoring, all areas of the Permit No. 221 landfill footprint are subject to regulatory monitoring based on the regulatory time schedule stipulated in 40 CFR 63.1960(b) and 40 CFR 60.36f(b). This yields a total monitored landfill footprint of approximately 13.4 acres for this quarterly event. Therefore, the target number of sampling points to cover the appropriate portion of the landfill footprint, utilizing a 30-meter grid interval, is approximately 64 (4.75 points per acre).

During the Annual 2022 SEM event, SCS sampled 85 points, including 12 surface cover penetrations. The recorded methane concentrations are presented in Exhibit 1. None of the 85 sampling locations demonstrated a methane concentration that exceeded the regulatory limit of 500 ppm above background.

Since no locations exhibited methane concentrations greater than the regulatory limit, the monitoring frequency for the Permit No. 221 Landfill remains on an annual basis.

SCS will notify the City of Bristol of the proposed schedule for the 2023 Annual Event (to be performed prior to December 31, 2023).



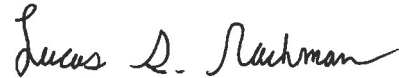
Mr. Mike Martin
October 28, 2022
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If you have questions or require additional information, please contact either of the undersigned.

Sincerely,



Lauren E. James
Associate Staff Professional
SCS Engineers



Lucas S. Nachman
Project Professional
SCS Engineers

LEJ/LSN

Cc. Joey Lamie, City of Bristol
Jacob Chandler, PE, City of Bristol
Crystal Bazyk, Virginia Department of Environmental Quality
Encl.

**EXHIBIT 1. SURFACE EMISSIONS MONITORING RESULTS
 PERMIT NO. 221 - 2022 ANNUAL EVENT - OCTOBER 12, 2022
 BRISTOL INTEGRATED SOLID WASTE FACILITY - BRISTOL, VIRGINIA**

Date	Time	ID #	Methane Concentration	Compliance	Comments
10/12/22	11:36	1	3.7 PPM	OK	GW-6
10/12/22	11:38	2	28.3 PPM	OK	GW-7
10/12/22	11:39	3	3.3 PPM	OK	
10/12/22	11:39	4	2.1 PPM	OK	
10/12/22	11:39	5	1.7 PPM	OK	
10/12/22	11:40	6	1.7 PPM	OK	
10/12/22	11:40	7	2.1 PPM	OK	
10/12/22	11:41	8	1.6 PPM	OK	
10/12/22	11:41	9	1.7 PPM	OK	
10/12/22	11:41	10	3.0 PPM	OK	
10/12/22	11:42	11	96.1 PPM	OK	GW-5
10/12/22	11:42	12	1.7 PPM	OK	
10/12/22	11:43	13	1.7 PPM	OK	
10/12/22	11:43	14	2.1 PPM	OK	
10/12/22	11:44	15	1.9 PPM	OK	
10/12/22	11:44	16	1.9 PPM	OK	
10/12/22	11:44	17	7.0 PPM	OK	
10/12/22	11:45	18	2.4 PPM	OK	
10/12/22	11:45	19	1.9 PPM	OK	
10/12/22	11:46	20	1.8 PPM	OK	
10/12/22	11:46	21	1.8 PPM	OK	
10/12/22	11:47	22	3.0 PPM	OK	
10/12/22	11:47	23	1.8 PPM	OK	
10/12/22	11:47	24	1.5 PPM	OK	
10/12/22	11:48	25	1.9 PPM	OK	GW-1
10/12/22	11:49	26	1.9 PPM	OK	
10/12/22	11:49	27	2.2 PPM	OK	
10/12/22	11:50	28	5.5 PPM	OK	GW-12
10/12/22	11:50	29	2.0 PPM	OK	
10/12/22	11:51	30	12.8 PPM	OK	GW-11
10/12/22	11:51	31	1.5 PPM	OK	
10/12/22	11:52	32	1.5 PPM	OK	
10/12/22	11:53	33	1.6 PPM	OK	GW-10
10/12/22	11:55	34	1.4 PPM	OK	
10/12/22	11:55	35	1.4 PPM	OK	
10/12/22	11:56	36	7.8 PPM	OK	GW-9
10/12/22	11:56	37	1.1 PPM	OK	
10/12/22	11:57	38	1.1 PPM	OK	
10/12/22	11:57	39	1.2 PPM	OK	GW-8
10/12/22	11:57	40	1.2 PPM	OK	
10/12/22	11:58	41	1.5 PPM	OK	
10/12/22	11:58	42	1.7 PPM	OK	
10/12/22	11:59	43	2.0 PPM	OK	
10/12/22	12:16	44	1.7 PPM	OK	
10/12/22	12:16	45	0.8 PPM	OK	
10/12/22	12:17	46	1.0 PPM	OK	
10/12/22	12:17	47	2.2 PPM	OK	
10/12/22	12:17	48	2.8 PPM	OK	
10/12/22	12:18	49	1.0 PPM	OK	
10/12/22	12:18	50	5.4 PPM	OK	
10/12/22	12:18	51	0.9 PPM	OK	
10/12/22	12:19	52	2.3 PPM	OK	
10/12/22	12:19	53	1.2 PPM	OK	
10/12/22	12:20	54	0.8 PPM	OK	
10/12/22	12:20	55	0.7 PPM	OK	
10/12/22	12:20	56	1.4 PPM	OK	
10/12/22	12:21	57	0.4 PPM	OK	
10/12/22	12:21	58	1.2 PPM	OK	
10/12/22	12:22	59	0.5 PPM	OK	
10/12/22	12:22	60	0.5 PPM	OK	
10/12/22	12:23	61	1.4 PPM	OK	GW-14
10/12/22	12:24	62	1.0 PPM	OK	
10/12/22	12:24	63	1.0 PPM	OK	
10/12/22	12:24	64	1.1 PPM	OK	
10/12/22	12:24	65	1.2 PPM	OK	
10/12/22	12:25	66	0.8 PPM	OK	
10/12/22	12:25	67	0.9 PPM	OK	GW-13
10/12/22	12:25	68	1.9 PPM	OK	
10/12/22	12:26	69	1.9 PPM	OK	
10/12/22	12:26	70	1.2 PPM	OK	

**EXHIBIT 1. SURFACE EMISSIONS MONITORING RESULTS
 PERMIT NO. 221 - 2022 ANNUAL EVENT - OCTOBER 12, 2022
 BRISTOL INTEGRATED SOLID WASTE FACILITY - BRISTOL, VIRGINIA**

Date	Time	ID #	Methane Concentration	Compliance	Comments
10/12/22	12:26	71	2.5 PPM	OK	
10/12/22	12:27	72	3.3 PPM	OK	
10/12/22	12:27	73	2.0 PPM	OK	
10/12/22	12:27	74	1.2 PPM	OK	
10/12/22	12:27	75	0.6 PPM	OK	
10/12/22	12:28	76	0.6 PPM	OK	GW-15
10/12/22	12:28	77	0.9 PPM	OK	
10/12/22	12:28	78	0.9 PPM	OK	
10/12/22	12:29	79	1.1 PPM	OK	
10/12/22	12:29	80	1.2 PPM	OK	
10/12/22	12:29	81	1.5 PPM	OK	
10/12/22	12:29	82	1.0 PPM	OK	
10/12/22	12:30	83	1.1 PPM	OK	
10/12/22	12:30	84	0.7 PPM	OK	
10/12/22	12:30	85	1.4 PPM	OK	

Number of points sampled:	85
Number of exceedance locations:	0

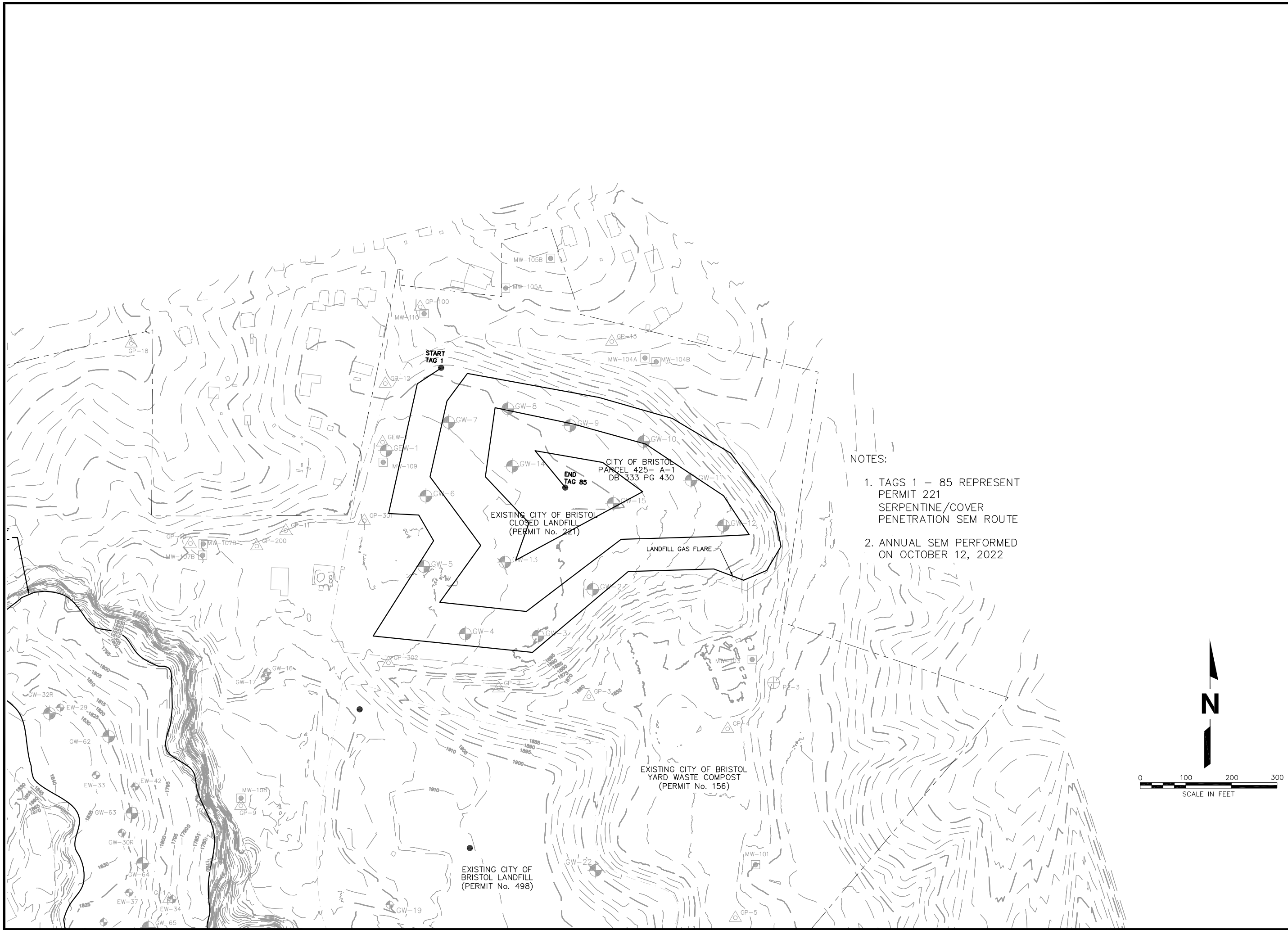
NOTES:
 Weather Conditions (10/12/22): Partly Cloudy, 64°F, Winds: 6 MPH SSE

Sampling Calibration: Methane - 500 ppm, Zero Air - 0.0 ppm

10/12/22	11:25	Zero	0.1 PPM
10/12/22	11:26	SPAN	498.0 PPM


Background Reading:

10/12/22	11:30	Upwind	1.9 PPM
10/12/22	11:36	Downwind	3.8 PPM



- NOTES:
1. TAGS 1 – 85 REPRESENT PERMIT 221 SERPENTINE/COVER PENETRATION SEM ROUTE
 2. ANNUAL SEM PERFORMED ON OCTOBER 12, 2022

SHEET TITLE BRISTOL SEM ROUTE		NO.	REVISION	DATE
PROJECT TITLE ANNUAL SURFACE EMISSIONS MONITORING SOLID WASTE PERMIT #221		△		
CLIENT BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY 2125 SHAKESVILLE RD BRISTOL, VA		CADD FILE: DATE: 10/28/22 SCALE: AS SHOWN DRAWING NO. 1 of 1		
SCS ENGINEERS STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC. 1827 W. MAIN ST., SUITE 100 BRISTOL, VA 24113 PH. (804) 378-7440 FAX. (804) 378-7433		PROJ. NO. 02218205.04 DATE: 02/28/2025	D/W BY: LSN C/K BY: LSN APP. BY: DBK	O/A RW BY: LSN APP. BY: DBK



Appendix B
October Monthly Wellhead Monitoring Data

November 1, 2022
File No. 07220028.00 Task 6

MEMORANDUM

TO: Jonathan Chapman, VDEQ – SWRO

FROM: Mike Gibbons, SCS Field Services

SUBJECT: Monthly Wellhead Monitoring Data – October, 2022
Landfill Permit Areas 221 and 498
Bristol Integrated Waste Management Facility, Bristol, Virginia

In accordance with the Draft VDEQ Consent Order for the Bristol Virginia Integrated Solid Waste Management Facility, SCS is submitting this data on behalf of the City of Bristol to satisfy the condition of Appendix B, compliance provision #3(ii). This compliance provision report includes monthly wellhead monitoring data for Solid Waste Permit Areas #221 and #498 for the month of October, 2022. Note that there are currently no landfill gas collectors connected to the extraction system in Area #498.

Please contact SCS if you have any questions or require additional information.

cc: Randall Eads, City of Bristol
David Cochran, City of Bristol
Michael Maine, City of Bristol
Robert E. Dick, P.E., SCS Engineers



Bristol Virginia Landfill - Permit 221 and 498 Extraction Well Data - 10/01/2022 to 10/31/2022

Point Name	Record Date	CH4 (% by vol)	CO2 (% by vol)	O2 (% by vol)	Bal Gas (% by vol)	Init Static Pressure ("H2O)	Adj Static Pressure ("H2O)	Temp (F)	Flow (scfm)	System Pressure ("H2O)	Comments
01	10/12/2022 09:16	21.4	15.6	11.4	51.6	-22.8	-22.7	59.6		-22.6	
02	10/12/2022 09:06	34.4	23.2	8.7	33.7	-18.5	-18.5	56.7	62.3	-22.5	Slightly Open
03	10/12/2022 08:56	18.6	13.6	14.5	53.3	-9.4	-9.4	57.4	5.2	-22.6	
04	10/12/2022 08:52	51.5	38.4	2.0	8.1	-5.7	-5.6	57.5	10.8	-22.5	
04	10/12/2022 08:52	51.5	38.4	2.0	8.1	-5.7	-5.6	57.5	10.8	-22.5	
05	10/12/2022 08:48	53.9	39.8	0.9	5.4	-24.9	-22.5	60.3		-22.3	
05	10/12/2022 08:48	53.9	39.8	0.9	5.4	-24.9	-22.5	60.3		-22.3	
06	10/12/2022 09:49	18.7	12.3	14.2	54.8	-20.4	-20.4	64.3	3.0	-22.5	
07	10/12/2022 09:45	57.9	40.1	0.0	2.0	-9.4	-9.4	67.7		-22.5	
08	10/12/2022 09:38	4.4	3.1	19.4	73.1	-1.9	-1.9	64.5		-22.4	
09	10/12/2022 09:34	50.0	35.7	3.1	11.2	-21.9	-21.9	61.1		-22.3	
10	10/12/2022 09:30	56.5	41.5	0.0	2.0	-1.3	-1.2	64.6	2.9	-22.4	Fully Closed
11	10/12/2022 09:23	25.0	18.6	12.4	44.0	-22.6	-22.6	59.3		-22.4	
12	10/12/2022 09:19	27.5	20.0	12.3	40.2	-22.8	-22.8	66.0	5.6	-22.7	
13	10/12/2022 08:59	55.0	38.7	5.3	1.0	-22.5	-22.5	60.3	9.0	-22.5	
14	10/12/2022 09:41	39.5	24.5	7.5	28.5	-1.6	-1.6	67.8		-22.4	
15	10/12/2022 09:10	59.4	40.6	0.0	0.0	-22.6	-22.6	60.7	5.5	-22.7	Slightly Open
16	10/12/2022 10:02	38.7	35.1	0.2	26.0	-10.9	-10.9	70.2		-18.8	
17	10/12/2022 10:06	33.1	26.6	13.1	27.2	-15.2	-15.1	58.7		-22.5	
18	10/12/2022 10:34	48.9	39.0	0.1	12.0	-12.1	-12.1	65.6	3.6	-22.5	
23	10/12/2022 10:14	0.2	0.5	21.4	77.9	-20.1	-20.1	56.5		-22.0	

Midlothian, VA

PROJECT: City Bristol, LF Engineering, ISWMF, VA 02218208.05 DATE: 11/10/2022

SUBJECT: Monthly Reports SWP# 588, 498, & 221 TRANSMITTAL ID: 00002

PURPOSE: For your review and comment VIA: Info Exchange

FROM

NAME	COMPANY	EMAIL	PHONE
Charles Warren Midlothian, VA	SCS Engineers	CWarren@scsengineers.com	+1-804-486-1903

TO

NAME	COMPANY	EMAIL	PHONE
Jonathan Chapman 355-A Deadmore Street Abingdon VA 24210 United States	Virginia Department of Environmental Quality	Jonathan.chapman@deq.virginia.gov	

REMARKS: Jonathan,

The Monthly Reports of the Solid Waste Permit #588, 498, and 221 landfills can be downloaded using the links below. Let us know if you have questions about the contents of these reports.

Regards,
Charles

Charles J. Warren, PE¹
Project Manager
SCS Engineers
15521 Midlothian Turnpike, Suite 305
Midlothian, VA 23113 USA
804-486-1903 (W)
cwarren@scsengineers.com

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¹ Registered in VA

Transmittal

DATE: 11/10/2022
TRANSMITTAL ID: 00002

DESCRIPTION OF CONTENTS

QTY	DATED	TITLE	NOTES
1	11/10/2022	October Compliance Report - SWP 588.pdf	
1	11/10/2022	October Compliance Report - SWP 498.pdf	
1	11/10/2022	October Compliance Report - SWP 221.pdf	

COPIES:

Bob Dick (SCS Engineers)
Brandon King (SCS Engineers)
Charles Warren (SCS Engineers)
Crystal Bazyk (Virginia Department of Environmental Quality)
Jacob Chandler (Bristol, VA, City of)
Jeffery Hurst (Virginia Department of Environmental Quality)
Jennifer Robb (SCS Engineers)
Tom Lock (SCS Field Services)
Stacy Bowers (Virginia Department of Environmental Quality)
Randall Eads (City of Bristol)
Michael Martin (Bristol, VA, City of)
Joey Lamie (City of Bristol)
Robert Gardner (SCS Engineers)